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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,582	08/02/2001	Kazumasa Ikushima	010620	5907

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EXAMINER

PARKER, FREDERICK JOHN

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 04/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,582

Applicant(s)

Examiner

Group Art Unit

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE — 3 — MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 3/21/03

☒ This action is FINAL.

- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-12, 14

Of the above claim(s) _____ is/are pending in the application.

☐ Claim(s) _____ is/are withdrawn from consideration.

☒ Claim(s) 1-6, 8, 9, 12, 14 is/are allowed.

☒ Claim(s) 7, 10, 11 is/are rejected.

☐ Claim(s) _____ is/are objected to.

_____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Notice of Reference(s) Cited, PTO-892

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other _____

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Response to Amendment

Specification

1. The amendments in response to the objections to the specification under this section of the Previous Office Action are acknowledged and appreciated, and the Examiner withdraws the objections.

Claim Objections

2. Claims 1,14 are objected to because of the following informalities: -
Claim 1, line 2, "the" should be inserted before "paste" for clarity. - Claim 14, line 2, "a" should be inserted before "paste line" for clarity; also on line 6, "bubble" should be plural. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The amendments in response to the 35 USC 112 rejections of the Previous Office Action are acknowledged and appreciated, and the Examiner withdraws the rejections. The new rejections are necessitated by amendments.

4.The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 11,14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 11: "drawing pattern" lacks proper antecedent basis; the claim is vague and indefinite because the meaning of the phrase "such that starting point coincides with end point of drawing said line segment" in context is unclear.

- Claim 14: line 5 is vague and indefinite because the meaning of "all over" can be variously interpreted to mean (1) uniformly coat in a bubble free fashion the entirety of the first and second surfaces or (2) the paste line is spread locally in a fashion which leaves no bubbles. The latter interpretation is taken in view of the designs of Applicants' figure 7 and the limitation that the designs must be 2-dimensional which excludes a significant thickness.

Claim Rejections - 35 USC § 102

6. The rejection under this heading using the Ishida reference is withdrawn.

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1-6,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu US 4824006.

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The rejection is modified slightly from the previous Office Action below in view of amendments.

Shimizu teaches an X-Y-Z directional paste application die-bonding apparatus for applying adhesive paste to a package 11 to which is bonded a semiconductor chip, the apparatus comprising a paste supply means with syringe and syringe holder for applying paste onto a substrate as the syringe needle is moved in X and Y directions to form linear paste segments (per claim 6), such as in figure 7 where an enclosed regular shape is formed per claim 8. It is apparent from figure 7 that the starting and end points of the applied paste would coincide and overlap. The paste lines formed are "two dimensional" as the terminology is commonly used and recognized in the relevant art even though it has a third (thickness) dimension, but this is the same dimensionality of Applicants' paste patterns, so that the paste pattern of the reference meets the limitation of being "two-dimensional". While the issue of bubbles is not taught, since the paste is identically and continuously drawn linearly along any given surface, it would have been inherent that the product would have been the same, i.e. free of bubbles.

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Applicants argue that the amended claim distinguishes over Shimizu by "forming a **two dimensional paste pattern**". The Examiner does not find this argument persuasive, for the same reasons discussed in detail above, and which are not repeated for sake of brevity. The continuous, linear paste deposits of both the Application and reference are "two-dimensional" and would have been expected to provide similar properties, including being free of bubbles because they are deposited continuously, linearly, and without interruption which might permit openings/ defects to trap gas bubbles.

9. Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Kawabe et al US 5985069.

Kawabe et al teaches manufacturing a flat panel display in which two substrates are assembled and joined by a continuous band (same as "line") of sealant material. As shown in figure 1a, a continuous band of sealing material 3 is applied onto substrate as a series of continuous segments, and the end portion overlapping the starting portion of the sealant. Upon sandwiching of the substrates 1,2 in figure 1b, the paste would continuously spread to form a continuous paste all over the exterior portions of the substrates 1,2 which meets

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Applicants' limitation interpreted in view of the phrase "all over" discussed under the 35 USC 112 section above.

Claim Rejections - 35 USC § 103

10. The rejections under this heading are withdrawn in view of amendment and replaced by the following.

11. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu.

Shimizu is cited for the same reasons discussed above, which are incorporated herein. Drawing a paste segment line of at least two drawn lines is not cited. However, it is the Examiner's position that it would have been obvious to one of ordinary skill to have applied a line segment in at least two pastes of the paste applicator to achieve a desired thickness and/ or line segment uniformity in order to allow and uniform thorough and uniform bonding of the chip onto the carrier.

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13. The prior art does not teach nor suggest the application of paste in a radial pattern or in a second path opposite in direction of the first direction per claims 7 and 10-11. The claims are objected to for depending from a rejected base claim.

14. Applicants' arguments regarding withdrawn rejections were considered, response is moot in view of their withdrawal.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however,

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will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred J. Parker whose telephone number is (703) 308-3474.



Fred J. Parker

**FRED J. PARKER
PRIMARY EXAMINER**

April 22, 2003

fr9-830582